

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-16 (Cancelled).

Claim 17 (Currently Amended): A transmitting device for transmitting signals in a wireless orthogonal frequency division multiplex (OFDM) communication system with multiple transmission antennas, comprising:

first and a second antenna means for transmitting data of a first and said-a second data stream, respectively, in OFDM signals; and

pilot symbol generating means for generating first and second pilot symbols to be transmitted among said data of said first and second data stream, wherein said first pilot symbols are transmitted via said first antenna and said second pilot symbols are transmitted via said second antenna,

wherein said first and said second pilot symbols correspond to one another and have the same frequency and time allocation and a regular distribution in the time and frequency dimension in the OFDM system,

and wherein at least some pairs of said first pilot symbols adjacent in the frequency dimension are respectively orthogonal to corresponding pairs of said second pilot symbols and at least some pairs of said first pilot symbols adjacent in the time dimension are respectively orthogonal to the corresponding pairs of said second pilot symbols.

Claim 18 (Currently Amended): A transmitting device according to claim 17, wherein corresponding ones of said first and second pilot symbols having the same frequency and time allocation are alternatingly identical and orthogonal to each other in the frequency and time dimension.

Claim 19 (Currently Amended): A receiving device for receiving signals in a wireless orthogonal frequency division multiplex (OFDM) communication system with multiple transmission antennas, comprising:

a single antenna means for receiving signals transmitted from a first and a second antenna means of a transmitting device of the OFDM communication system, said first and said second antenna means transmitting corresponding first and second pilot symbols respectively,

wherein said first and said second pilot symbols correspond to one another and have the same frequency and time allocation and a regular distribution in the time and frequency dimension in the OFDM system, and wherein at least some pairs of said first pilot symbols adjacent in the frequency dimension are respectively orthogonal to the corresponding pairs of said second pilot symbols and at least some pairs of said first pilot symbols adjacent in the time dimension are respectively orthogonal to the corresponding pairs of said second pilot symbols; and

processing means for detecting pilot symbols in the received signals, for processing detected pilot symbols and performing a channel estimation on the basis of said processing to separately determine the transmission quality of signals transmitted from each of said first and said second antenna means.

Claim 20 (Currently Amended): A receiving device according to claim 19, wherein said first and second pilot symbols transmitted from said first and second antenna means are alternatingly identical and orthogonal to each other in the frequency and time dimension, and adjacent pairs of said pilot symbols are processed to determine the transmission quality.

Claim 21 (Currently Amended): A channel estimation method for performing a channel estimation in a wireless orthogonal frequency division multiplex (OFDM) communication system in which a transmitting device comprising a first and a second antenna transmits signals, comprising the steps of:

transmitting first and second pilot symbols via said first and said second antenna means, respectively, wherein said first and said second pilot symbols correspond to one another and have the same frequency and time allocation and a regular distribution in the time and frequency dimension in the OFDM communication system,

and wherein at least some pairs said of first pilot symbols adjacent in the frequency dimension are respectively orthogonal to corresponding pairs of said second pilot symbols and ~~the~~ at least some pairs of said first pilot symbols adjacent in the time dimension are respectively orthogonal to the corresponding pairs of said second pilot symbols;

receiving said pilot symbols in a single antenna of a receiving device; and processing said received pilot symbols and performing a channel estimation on the basis of said processing to separately determine the transmission quality of said signals transmitted from said first and said second antenna means.

Claim 22 (Previously Presented): A channel estimation method according to claim 21,

wherein said first and second pilot symbols transmitted from said first and second antenna means are alternatingly identical and orthogonal to each other in the frequency and time dimension, and adjacent pairs of pilot symbols are processed to determine the transmission quality.

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Reply to Office Action of September 8, 2006.

Claims 23-42 (Canceled).